Name: _____

AP Calculus – Area and Volume Review Problems

For each of the following problems, draw a picture and label all parts of the graph.

Part One: Area between curves – Find the are enclosed by the graphs.

1. $y = \frac{8}{x^2}, y = 8x$, and $y = x$.

2. $y = x^2, y = (x-2)^2$, and $y = 0$.

3. $f(x) = x^3 - 10x$ and $g(x) = 6x$.

4. $h(y) = y^2 - 1$ and $g(y) = y^2 - \frac{1}{8}y^4 + 1$.

Part Two: Volume of Revolutions – Find the volume enclosed by the following graphs revolved around the given line.

5. $y = e^{-x}, y = 1 - e^{-x}$, and $x = 0$ about the line $y = 4$.

6. $y = e^{-x}, y = 1 - e^{-x}$, and $x = 0$ about the line $x = -2$.

7. $y = \frac{9}{x^2}, y = 10 - x^2, x \geq 0$ about the line $y = 12$.

8. $y = -\frac{1}{2}x^3, y = 4$, and $x = 2$ about the line $y = 6$.

9. $y = e^{-x^2}, y = 1 - \cos x,$ y – axis about the y – axis.

10. $y = e^{-x^2}, y = 1 - \cos x,$ y – axis about the $y = 8$.